MEETINGS

Diverse Views on Climate Change

Third Santa Fe Conference on Global and Regional Climate Change; Santa Fe, New Mexico, 30 October to 4 November 2011

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At the Third Santa Fe Conference on Global and Regional Climate Change, hosted by the Los Alamos National Laboratory's Center for Nonlinear Studies, researchers offered some of the latest thinking on how to observe and model the driving forces as well as the impacts of regional and global climate change, climate system responses, and societal impacts. It was the third in a series of conferences held at 5-year intervals.

More than 140 climate science experts from the United States and foreign universities and research centers attended the conference, held at the La Fonda Hotel in historic downtown Santa Fe. The conference program included more than 80 invited and contributed oral presentations and about 30 posters. The oral sessions were grouped by topic into sessions of four or five talks, with discussion occurring at the end of each session.

The purpose of this conference was to bring together experts with diverse views on climate change and facilitate discussions and collaborations among them. The major modeling groups presented recent model simulations as well as much simpler climate models. The Berkeley Earth Surface Temperature group presented a recent independent reconstruction of global land surface temperature that, while largely consistent with prior efforts from the National Oceanic and Atmospheric Administration (NOAA), NASA, and the Climatic Research Unit in the United Kingdom, extends the record back to 1800. Despite statistical uncertainties arising from the sparseness of the data, rather strong approximately 20-year oscillations of 0.5- to 1-K amplitude are evident during the nineteenth century.

Other sessions focused on solar forcing variability, evidence that cosmic rays may lead to new aerosol particle formation, measurements of atmospheric state and composition, vegetation response to climate change, the complexity of Arctic forcing and feedback processes, the economics of averting and adapting to climate change, and approaches for verification of adherence to future climate treaties.

The conference conveners made a special effort to allow for presentations from researchers who have directly called into question the attribution of long-term climate change to human activities or who have been critical of assessments by the Intergovernmental Panel on Climate Change. The meeting's goal was not to espouse these or any other viewpoints but rather to foster an exchange of ideas that has been more difficult at more traditional conferences.

Useful discussions developed about the implications of complexity and uncertainty on long-term projections and whether they are being overstated. In particular, numerically and observationally based arguments in several presentations suggest that the impacts of aerosol direct and indirect (cloud) forcings may be limited to regional phenomena rather than exerting a strong decadal-scale global cooling influence. Also, considerable discussion was stimulated by presentations on natural internal oscillations associated with ocean-atmosphere coupling. The most notable of these couplings is the Atlantic Multidecadal Oscillation, which was suggested to account for up to one half of regional rapid warming since 1970 and for the relatively constant global temperature signal seen subsequent to 2000.

The meeting was cosponsored by the Brookhaven National Laboratory and American Meteorological Society. A summary report will be prepared for publication, and a special issue in the *Journal of Geophysical Research* will showcase findings.

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